



**Basic Life Safety Code Course  
Student Manual**

## Module 4, Lesson 2 Building Construction

### **Performance Objectives**

At the conclusion of this lesson, you will be able to:

- Identify types of construction and determine whether a building's construction meets the minimum compliance requirements of the LSC.
- Complete K-11 through K-13 and K-103.

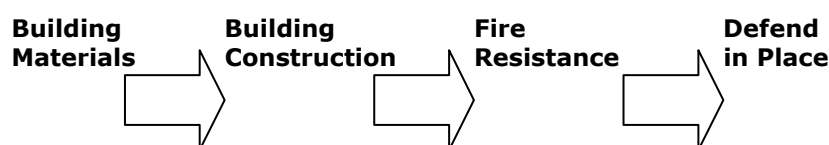




Building materials determine construction type

## Building Construction

As a result of the *defend-in-place* theory for healthcare occupancies, the fire resistance of a building is of utmost importance. To understand fire resistance you must have knowledge of building construction types. To understand building construction types, you need to know the attributes of building materials. The information provided in this course will introduce you to some basic concepts about building construction and will serve as a foundation for your continued learning in this field. Until you gain a more in-depth knowledge, you will be heavily dependent upon references, charts, and your colleagues.



**Figure 4.2-1. Foundations of Fire Resistance**

## Understanding Fire Resistance



- FRR = how long it takes to burn through something
- FSR = how long it takes to burn across the surface of something

A fire resistive rating (FRR) is given in minutes or hours and relates to how long it takes to burn *through* a given material. Expressions like “2-hour fire resistive rating” or “2-hour fire wall” relate to the length of time it takes to burn through types of building materials. For example, pieces of sheetrock or wood of varying thickness will have different FRRs.

Compare the definition of FRR with that of the flame spread rating (FSR) used in interior finish discussions. The FSR denotes how long it takes to burn *across the surface of* something. The FRR, as noted above, focuses on how long it takes to burn through something. The NFPA, for example, may use a door exposed to fire in a controlled environment to find out how long it will take for the flames to pass through to the other side.



**Figure 4.2-2. Difference between Flame Spread Rating and Fire Resistive Rating**

### The Healthcare Community and Fire Resistance



Fire resistance is important in healthcare facilities because defending-in-place is often used instead of evacuation

Evacuation is not always a viable strategy in healthcare facilities

Why is fire resistance of such concern in the healthcare community? Healthcare occupancies have inherent fire and life safety concerns. Healthcare and ambulatory care occupancies house patients who may be bedridden or undergoing procedures that render them incapable of self-preservation. (The key differences between healthcare and ambulatory care occupancies is that healthcare patients are housed for more than 24 hours, whereas ambulatory care patients do not stay overnight.)

Often it is not practical to evacuate healthcare patients in the event of a fire. Moving litter-borne patients between floors is very labor intensive and not considered a reasonable approach to safeguarding patients. Consequently, healthcare occupancies rely on a defend-in-place strategy to ensure life safety. Healthcare occupants are often relocated to a *safe area* on the same floor of a building during a fire. For this reason, the fire resistance of the structure is critical for ensuring adequate fire protection and life safety. Healthcare occupancies are one of the few occupancies for which minimum construction requirements are mandated by the LSC.

### Type of Construction

The allowable construction type of a building is directly related to the occupancy of the building, the area per floor, and/or the number of stories. In healthcare occupancies, construction type drives the number of stories allowed. The primary level of exit discharge is considered the first story when counting stories. Determining the primary level of discharge can be difficult. It is defined in Chapter 3, LSC and is based on percent of perimeter and egress capacity. Levels below the primary level are not included as stories when determining a building's height for the purposes of applying the LSC.

## Designations of Types of Construction

One of the most important items on any survey report form is building construction. The construction type and height of a building may determine whether the building requires sprinklers. For healthcare occupancies, all new construction requires sprinklers regardless of these factors. Each construction type is based on the FRR of the three basic structural elements:

- Floor assemblies.
- Columns.
- Walls.

There are two basic types of construction: it either burns (combustible) or it does not (noncombustible). These types of construction can be further broken down into five categories:

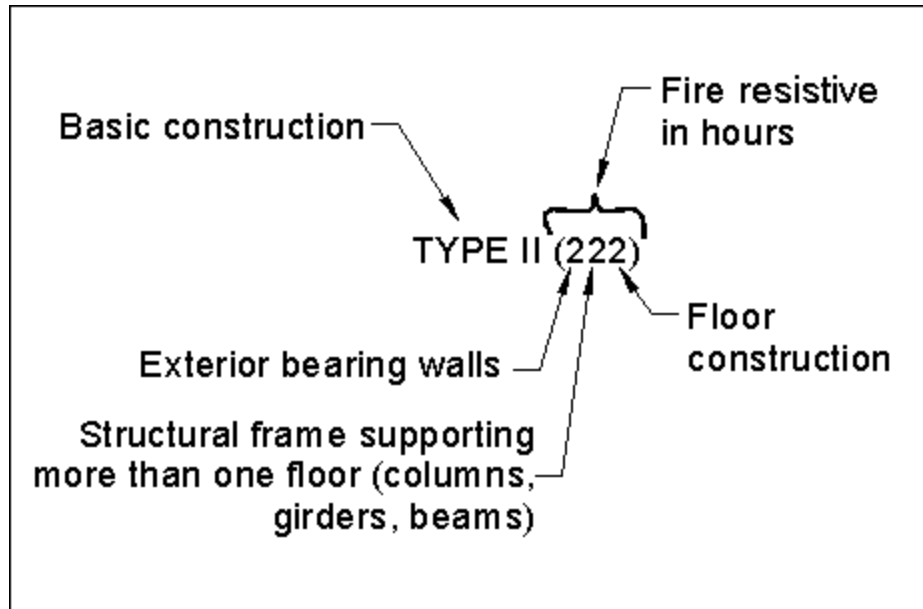
- Type I, Fire Resistive: Consists of precast concrete slabs supported by precast columns and precast girders.
- Type II, Noncombustible: The weight bearers are generally steel beams and girders. (If the building is Type II (000), the beams and girders are all “unprotected” steel.)
- Type III, Ordinary: Can consist of a mix of materials, including wood and concrete.
- Type IV, Heavy Timber: Construction using heavy timber. This type of construction used to be more widespread than it is today. To qualify as heavy timber, a wood member must meet a certain thickness requirement.
- Type V, Wood Frame: All-wood construction.



Construction types are defined in NFPA 220, *Standard on Types of Construction*

Construction types are defined in NFPA 220, *Standard on Types of Construction*. References to construction type in this lesson follow the NFPA 220 format. The numbering system (refer to Table 4.2-2) used in most building codes, however, does *not* follow NFPA 220.

The NFPA 220 format uses a combination of Roman and Arabic numerals. Figure 4.2-3 shows the complete format used in NFPA 220 and the meaning of the numbers it employs. The Roman numeral indicates type of construction according to the scheme presented above. The three Arabic numerals in parentheses following the Roman numeral indicate the fire resistance of the exterior bearing walls, structural frame, and floor, respectively. As the Roman numeral increases, the hourly ratings generally go down: construction gets poorer. There is an inverse relationship between the Arabic numeral and the degree of fire resistance and combustibility.



**Figure 4.2-3. Decoding NFPA 220 Code Format for Fire Resistive Rating**

For example, a building labeled Type I (332) is a Type I construction, and you should expect that construction to be fire resistive. Type II (222) is also fire resistive, but note that the fire resistance is lower than Type I. In the number “332,” the first 3 indicates that the exterior bearing wall has a 3-hour rating. The next Arabic number, also 3, indicates there is a 3-hour FRR for the structural frame or columns and girders as well. And finally, the last digit, 2, represents a 2-hour fire resistive construction for the floor.

The sequence of Arabic numerals in an NFPA rating and the Roman numeral are connected. Only certain combinations of Arabic numerals can go with certain construction types. For example, if the Arabic numeral sequence in the above example had been “222” instead of “332,” the type of construction would be defined as Type II. A Type II construction does not qualify for a Type I classification because at least one of the structural elements does not have a high enough FRR. In Figure 4.2-3, the construction would not qualify for Type I, which requires a 3-hour FRR for the exterior bearing wall and the structural frame.

Table 4.2-1 details the various types of construction and the types of construction permissible for healthcare occupancies.

**Table 4.2-1. Fire-Resistive Building Element Matrix**

Fire Resistance of Building Elements in Accordance with NFPA 220										
	Type I		Type II			Type III		Type IV	Type V	
	443	332	222	111	000	211	200	2HH	111	000
EXTERIOR BEARING WALLS										
Supporting more than one floor, columns or other bearing walls	4	3	2	1	0 <sup>1</sup>	2	2	2	1	0 <sup>1</sup>
Supporting one floor only	4	3	2	1	0 <sup>1</sup>	2	2	2	1	0 <sup>1</sup>
Supporting a roof only	4	3	1	1	0 <sup>1</sup>	2	2	2	1	0 <sup>1</sup>
INTERIOR BEARING WALLS										
Supporting more than one floor, columns or other bearing walls	4	3	2	1	0	1	0	2	1	0
Supporting one floor only	3	2	2	1	0	1	0	1	1	0
Supporting a roof only	3	2	1	1	0	1	0	1	1	0
COLUMNS										
Supporting more than one floor, bearing walls or other columns	4	3	2	1	0	1	0	H <sup>2</sup>	1	0
Supporting one floor only	3	2	2	1	0	1	0	H <sup>2</sup>	1	0
Supporting a roof only	3	2	1	1	0	1	0	H <sup>2</sup>	1	0
BEAMS, GIRDERS, TRUSSES & ARCHES										
Supporting more than one floor, bearing walls or other columns	4	3	2	1	0	1	0	H <sup>2</sup>	1	0
Supporting one floor only	3	2	2	1	0	1	0	H <sup>2</sup>	1	0
Supporting a roof only	3	2	1	1	0	1	0	H <sup>2</sup>	1	0
FLOOR CONSTRUCTION	3	2	2	1	0	1	0	H <sup>2</sup>	1	0
ROOF CONSTRUCTION	2	1½	1	1	0	1	0	H <sup>2</sup>	1	0
EXTERIOR NONBEARING WALLS <sup>3</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>	0	0 <sup>1</sup>	0 <sup>1</sup>	0 <sup>1</sup>
Those members listed that are permitted to be of approved combustible material.										
<sup>1</sup> Requirements for fire resistance of exterior walls, the provision of spandrel wall sections, and the limitations or protection of wall openings are not related to construction type. They need to be specified in other standards and codes, where appropriate, and may be required in addition to the requirements of the standard for the construction type.										
<sup>2</sup> “H” indicates heavy timber members.										
<sup>3</sup> Exterior nonbearing walls meeting the conditions of acceptance of NFPA 285, Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components Using the Intermediate-Scale Multistory Test Apparatus, shall be permitted to be used.										

### Comparison of NFPA 220 Construction Types to Those Often Cited on Construction Documents

Typically, construction documents and other building documentation classify construction types based on construction type designations found in building codes. Table 4.2-2 shows the correlation among various construction type designations.

**Table 4.2-2. Construction Type Comparison with Model Building Codes**

<b>NFPA 220 Construction Compared To Model Building Code Construction Types</b>				
<b>NFPA 220</b>	<b>UNIFORM</b>	<b>BOCA</b>	<b>STANDARD</b>	<b>IBC</b>
I (443)	—	1A	I	—
I (332)	I-FR	1B	II	I A
II (222)	II-FR	2A	—	I B
II (111)	II-1HR	2B	IV-1HR	II A
II (000)	II-N	2C	IV-UNP	II B
III (211)	III-1HR	3A	V-1HR	III A
III (200)	III-N	3B	V-UNP	III B
IV (2HH)	IV-HT	4	III	IV HT
V (111)	V-1HR	5A	VI-1HR	V A
V (000)	V-N	5B	VI-UNP	V B

In the field, identifying the construction type is often a challenge. You usually learn to do this through experience. You also have access to construction documents and may use the information in Table 4.2-2. If you walk into a building and see concrete block or brick, but no wood, the structure is likely to be a Type I or II. (It

does matter, however, which of those two types the structure's actual rating is. For example, if an anesthetizing healthcare building is Type II (000), it requires sprinklers. If it is a Type II (222), sprinklers are not required.) Building type also dictates the maximum number of stories the building can have.

In some cases, you can have a Type II (000) rating, which indicates noncombustible construction with no fire resistive rating, as is the case with steel construction without the use of wood. It would be permissible to build a two-story building out of steel if the steel were encased in sheetrock or a coating to acquire an FRR.

If wood is used in the construction of a building, the FRR is likely to be either 1-hour or 0-hours. It is possible to have enclosed wood members that would provide a 2-hour FRR.

### **Structural Integrity**



Taller buildings are less stable & take longer to evacuate, so structural integrity is vital

As in the childhood fable “The Three Little Pigs,” structural integrity is very important. The height of a building is critical, because the taller the structure, the longer it takes people to evacuate. Buildings that will not hold up under stress are a consideration as well. Both issues deal with building materials, which is why the LSC begins with construction considerations. In the Fire Safety Evaluation System (FSES), you will see that an unprotected wood frame construction earns a building a –13 if the building has four or more stories. The higher the structure, the more negative points it earns for construction disadvantages.

### **Advantages and Disadvantages of Construction Materials**

As you can see, there are various advantages and disadvantages to each type of construction material. Type III construction with brick, tile, and concrete behaves well in a fire without sustaining severe damage. Concrete, however, is hollow. It has poor sheer resistance but good compression strength so that it can hold up weight. It cracks, but it keeps its integrity. Because it cracks, it is weak in tensile strength. Thus, it is often strengthened by using steel rods to create reinforced concrete.

Certain commonly-used construction materials present particular considerations to you as a surveyor.

#### **Steel**

Steel is an important load-bearing material because of its ability to hold a lot of weight. A common misconception is that steel is fire resistive. But under high heat, steel buckles. It transmits heat readily, has substantial expansion capacity, and is subject to total collapse at 1450 degrees Fahrenheit. At high temperatures, steel loses its structural integrity. In

order for a steel structure to achieve fire resistance, it must be encased or sprayed with material to protect it.

### **Vermiculite**

There is another kind of lightweight concrete in powder form that is known as vermiculite. Vermiculite replaces asbestos for spraying on structural steel and appears as a gray powder on the surface of steel. The rating given to steel coated with vermiculite depends upon how thickly the vermiculite is sprayed on. Vermiculite coating could increase the rating of steel construction from 20 minutes to 2 hours. As a surveyor, you need to see proof of vermiculite coating and its thickness to support an increased FRR. (Over time, the vermiculite coating might need to be resprayed, and you need to take this into account as well.)

### **Gypsum**

Gypsum building materials go by many names: gypboard, wallboard, and sheetrock, among others. They have various FRRs, depending on their thickness. Three-eighths of an inch sheetrock is rated for 20 minutes. Five-eighths of an inch sheetrock is rated for ½ -hour. Two layers of 5⁄8-inch sheetrock provide a 1-hour shield. If a steel column needs 1-hour protection, it would have to be enclosed within two layers of 5⁄8 -inch sheetrock.

### **Glass**

Because glass breaks, buildings often use wired glass. For example, Canadian wireglass has a 1-hour burn rating.

Glass openings in fire-rated assemblies must be protected. In the past, wired glass set in steel frames was installed in openings to provide the required fire resistance. The size was limited based on the rating of the door and/or wall. For example, 1½-hour rated fire door openings were limited to 100 sq. in. of wired glazing. There are newer, fire-rated glazing products that are labeled with the fire rating. When surveying, look for a label in the corner of the glass. Note that tempered glass with a UL label is not “fire rated” and is not approved for use in a fire-rated assembly.

## **Fire Resistive–Rated Construction**

Fire resistance is an expression of the *relative* performance of structural components when subjected to a *standard* fire exposure. The key words are “relative” and “standard.” Fire barriers and structural elements are tested to determine fire endurance, expressed as fire resistance. NFPA 251, *Standard Methods of Fire Tests of Building Construction and Materials*, is referenced by the LSC for establishing the FRR of fire barriers. ASTM E-119 and UL 263 are equivalent to the NFPA 251 test method.



Fire resistance is a relative concept, not an absolute one

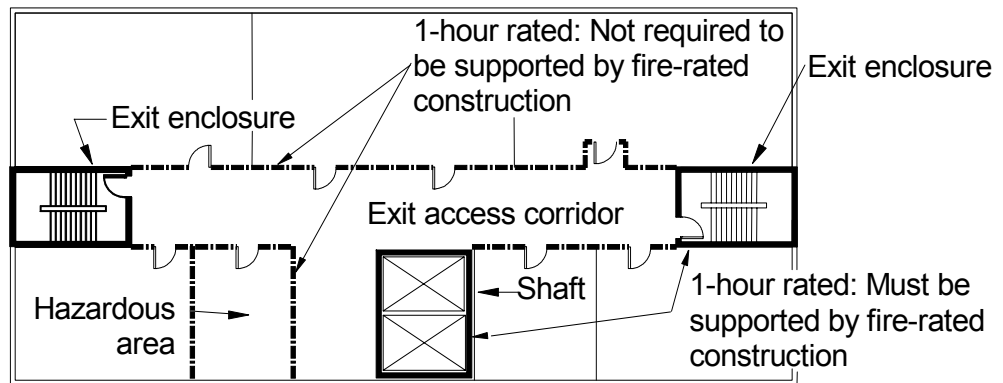
A door's 2-hour FRR does not mean that the door will last exactly 2 hours in a fire

FRRs are relative rather than absolute. For example, a 2-hour fire barrier (wall) in a building involved in an actual fire may not maintain its structural integrity for a period of two hours. On the other hand, the wall may maintain its integrity for more than two hours. The ratings are based on a specific time and temperature curve. This time-temperature curve is representative of a specific fire, not necessarily the fire that will occur in any particular space. The important concept to remember is that 2-hour fire resistive-rated construction will last longer than 1-hour fire resistive-rated construction. Openings and penetrations in fire-rated barriers must be protected with rated components.

### Protected and Unprotected

When we discuss whether a building is protected or unprotected, we do not mean whether it is sprinklered. "Protected construction" means construction that has an FRR. Protected construction can be of Type I (443) or Type II (222). It cannot, however, be of Type II (000), Type III (200), or Type V (000); those are unprotected, since in each instance at least one element of the three that are rated (exterior bearing walls, structural frame, floor) has a 0 rating.

"Protected" means that the building has an FRR of at least 1 hour based on its structural elements. Each of the Arabic numerals defines whether the building is protected or not.



**Figure 4.2-4. Compartmentation Floor Plan**

### Compartmentation

Fire compartments are generally formed with 1-hour or 2-hour fire barriers tested in accordance with NFPA 251 or its equivalent. These compartments can serve as stair enclosures, horizontal exits, and elevator enclosures.

Table 4.2-3 explains the required rating for specific types of barriers.

**Table 4.2-3. Fire Barrier Ratings**

Fire Resistive Rating	Fire Barrier Function
2 hr	New exit enclosure (> 3 stories)
	Existing exit enclosures (in nonsprinklered high-rise buildings)
	Vertical opening protection (> 3 stories)
	Horizontal exit
	Occupancy separation (varies)
1 hr	New exit enclosure (≤ 3 stories)
	Existing exit enclosures (in other than nonsprinklered high-rise buildings)
	New vertical opening protection (≤ 3 stories)
	Existing vertical opening protection (health care)
	Hazardous area protection
	Occupancy separation (varies)
	Corridor separation (varies)
	Smoke barriers (new health care)
½ hr	Existing vertical opening protection (other than health care)
	Corridor separation (varies)
	Smoke barriers (varies)
	Residential uses

### Door Assemblies in Fire Barriers

Openings and penetrations in fire-rated barriers must be protected with rated opening protectives (including doors, windows, sealants, and dampers). There is a requirement for specific types of opening protectives for specific penetrations in rated barriers (see Table 4.2-4). Doors in fire barriers are required to be fire rated. Door rating is based on testing in accordance with NFPA 252, *Standard Methods of Fire Tests of Door Assemblies* (ASTM E-2074-00, *Standard Test Method for Fire Tests of Door Assemblies*; UL 10B, *Standard for Fire Tests of Door Assemblies*). Rated windows are tested in accordance with

NFPA 257, *Standard on Fire Tests for Windows and Glass Block Assemblies* (UL 9, *Standards for Fire Tests of Window Assemblies*). Fire doors and windows must be installed in accordance with NFPA 80, *Fire Doors and Windows*, which requires fire doors to be automatic or self-closing and self-latching. Openings in fire barriers are limited in size. The number and size of doors, windows, electrical boxes, and access panels in rated partitions are limited.

When pipe, conduit, cable trays, etc., pass through a fire-rated barrier, the space between the penetrating item and fire-rated barrier is required to be sealed to preserve the fire-resistance integrity of the barrier.

**Table 4.2-4. Fire Resistance of Opening Protectives**

Fire Resistive Rating	Fire Barrier Function	Opening Protection Rating
2 hr	Exit enclosure	1½ hr
	Vertical opening protection	1½ hr
	Horizontal exit	1½ hr
	Occupancy separation	1½ hr
1 hr	Exit enclosure	1 hr
	Existing door in exit enclosure	45 min
	Vertical opening protection	1 hr
	Existing door in vertical opening	45 min
	Hazardous area protection	45 min
	Occupancy separation	45 min
	Corridor separation	20 min*
	Smoke barriers	20 min*
½ hr	Corridor separation	20 min*
	Smoke barriers	20 min*
	Residential	20 min*
*Existing 1¾ in. solid bonded wood core doors without a fire rating are permitted to continue in use.		



NFPA 80  
contains  
requirements for  
fire doors

## **NFPA 80**

### **Fire Doors**

Both rated doors and frames must have rating labels, which can be found on the door rail near the hinges. Labels on frames are typically found between the upper hinges or may be on the top of the door leaf. NFPA 80 regulates the size of the gap between the door and frame and the gap between the door and the floor. The size of the allowable gap varies based on door material and floor finish.

Fire-rated doors must latch to be in compliance with NFPA 80. Existing patient room doors do not have to latch in certain instances. Locking arrangements are also regulated. There are minimum distances throws must penetrate into the door frame. Protective plates are permitted when the door is listed with the plates. Unlisted protective plates may be installed on listed doors provided the top edge of the plate is not more than 16 inches above the bottom of the door. Healthcare occupancy requirements permit protective plates up to 48 inches high to be installed on corridor, smoke barrier, and hazardous area doors.

### **Care and Maintenance of Fire Doors**

Door openings and the surrounding area must be kept clear of anything that could obstruct or interfere with the free operation of the door. Blocking or wedging of doors in the open position is prohibited. If a door is normally to remain open, automatic releasing devices are to be used. Self-closing devices must be kept in proper working order at all times. When a fire door frame is damaged to the extent that it could impair the proper operation of the door, it must be repaired with parts from the original manufacturer and tested upon completion of the repair. Combustible materials must be kept well away from door openings. When a door or window is no longer being used, NFPA 80 requires that the opening be filled with material consistent with the wall construction.

## **Minimum Construction Types for Healthcare Occupancies**

Healthcare facilities must meet minimum construction types prescribed by the LSC Healthcare Minimum Construction Requirements.

A building's classification is the same as that of the lowest-rated construction type present or used in the facility.

Note that some existing building construction types cannot house healthcare occupancies unless they are sprinkler protected. Healthcare occupancies are not permitted in buildings of unprotected and combustible construction of more than two stories. The minimum construction type for ambulatory care facilities is not as restrictive as that for healthcare facilities in general.

**Table 4.2-5. Healthcare Construction Limitations**
**New Construction**

Construction Type	Stories			
	1	2	3	4 or More
I(443)	X	X	X	X
I(332)	X	X	X	X
II(222)	X	X	X	X
II(111)	X	X	X	NP
II(000)	X	NP	NP	NP
III(211)	X	NP	NP	NP
III(200)	NP	NP	NP	NP
IV(2HH)	X	NP	NP	NP
V(111)	X	NP	NP	NP
V(000)	NP	NP	NP	NP

X: Permitted type of construction.

NP: Not permitted.

**Existing Construction**

Construction Type	Stories			
	1	2	3	4 or More
I(443)	X	X	X	X
I(332)	X	X	X	X
II(222)	X	X	X	X
II(111)	X	X*	X*	NP
II(000)	X*	X*	NP	NP
III(211)	X*	X*	NP	NP
III(200)	X*	NP	NP	NP
IV(2HH)	X*	X*	NP	NP
V(111)	X*	X*	NP	NP
V(000)	X*	NP	NP	NP

X: Permitted type of construction.

NP: Not permitted.

\*Building requires automatic sprinkler protection. (See 19.3.5.1.)

Note that all new and any renovated healthcare occupancies are required to be protected with sprinkler protection. When you conduct a survey, you will generally see any areas that have undergone major renovations equipped with automatic sprinkler protection, even if the entire building is not required to be sprinkler protected under the LSC. The LSC requires the entire smoke compartment to be sprinkler protected, even when only a portion of the smoke compartment undergoes substantial renovation.

## **Sources of More Information**

There are a number of published sources of information about construction materials. The following is a partial listing of suppliers of test documentation and some of the documentation available:

### **Underwriters Laboratories Inc.**

Corporate Headquarters  
333 Pfingsten Road  
Northbrook, IL 60062-2096  
Phone: (847) 272-8800  
Fax: (847) 272-8129  
*UL Fire Resistance Directory*  
*UL Building Materials Directory*

### **Factory Mutual Research Corporation**

Northeast Field Engineering  
500 River Ridge Road  
P.O. Box 9102  
Norwood, MA 02062  
Phone: (617) 255-0181  
Fax: (617) 440-8718  
*FM Approval Guide*

### **Warnock Hersey Inc.**

27611 La Paz Road, Suite C  
Laguna Niguel, CA 92677-3917  
Phone: (949) 448-4100  
Fax: (949) 448-4111  
*Warnock Hersey Certification Listing*

### **Omega Point Laboratories, Inc.**

16015 Shady Falls Road  
Elmendorf, TX 78112-9784  
Phone: (210) 635-8100  
Fax: (210) 522-3547  
*Omega Point Laboratories Product Directory*

**Southwest Research Institute**

P.O. Drawer 28510  
San Antonio, TX 78228-5111  
Phone: (210) 684-5111  
Fax: (210) 522-3547  
For packages requiring a physical location:  
6220 Culebra Road  
San Antonio, TX 78238-5166

**Gypsum Association**

810 First Street, N.E., #510  
Washington, DC 20002  
Phone: (202) 289-5440  
Fax: (202) 289-3707



Review  
construction  
documents &  
permits to verify  
construction type

**Surveying for Compliance**

Construction type should always be verified through survey and evaluation of the existing building structure to ensure construction type assessment is accurate. Visual identification is often misleading and/or inconclusive. Review of construction documents, architectural drawings, and/or permit documents, if available, may verify construction type.

**Tips for Identifying Construction Type**

To help identify a building's construction type, check ceiling joists, beams, columns, and girders for wood. If you see any wood, the building is probably either Type III or Type V construction. For a more accurate assessment, you should remove the plate on an electrical outlet (or ask the maintenance person to do so) and look for wood studs for the electrical box mounting.

Type IV construction is heavy timber. Type III contains wood, but can include some concrete, brick, and masonry.

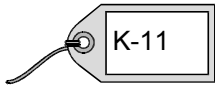
**Red Flags**

For unprotected steel or combustible construction, further research or documentation may be required to determine LSC compliance.

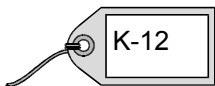
Note that in some instances, there may be a floor/ceiling assembly that incorporates a suspended ceiling with a fire-resistive rating.

If multiple construction types are noted, you should look for 2-hour building separations that divide a facility into multiple buildings, each with its own construction type.

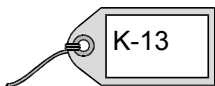
### **K-Tags**



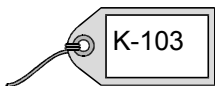
If portions of the building do not meet the minimum LSC criteria for existing healthcare occupancies, they must be separated from the conforming healthcare occupancy by 2-hour fire rated construction. Often a 2-hour separation is also provided where the construction type of an addition is not consistent with the remainder of the building. These barriers should be identified and inspected, as their integrity is critical to the healthcare occupants.



The minimum construction requirements for existing healthcare occupancies have previously been addressed. It is critical to ensure existing construction is compliant.



The minimum construction requirements for new healthcare occupancies have previously been addressed. It is critical to ensure new construction is compliant. All new construction requires automatic sprinkler protection.



If noncombustible construction is provided (Type I or II), then no combustible construction should be permitted, even for interior partitions. For existing buildings, combustible interior partitions can be used if the wood is fire retardant treated.

Name of Facility		2000 CODE																													
ID PREFIX	PART I - LSC REQUIREMENTS - Items in italics relate to the FSES	MET	NOT MET	REMARKS																											
<b>BUILDING CONSTRUCTION</b>																															
K11	If the building has a common wall with a nonconforming building, the common wall is a fire barrier having at least a two hour fire resistance rating constructed of materials as required for the addition. Communicating openings occur only in corridors and shall be protected by approved self-closing fire doors. 18.1.1.4.1, 18.1.1.4.2, 19.1.1.4.1, 19.1.1.4.2																														
K12	2000 EXISTING Building construction type and height meets one of the following: 19.1.6.2, 19.1.6.3, 19.1.6.4, 19.3.5.1																														
K13	<table border="1"> <tr> <td>1</td> <td>I (443), I (332), II (222)</td> <td>Any Height</td> </tr> <tr> <td>2</td> <td>II (111)</td> <td>One story only (non-sprinklered).</td> </tr> <tr> <td>3</td> <td>II (111)</td> <td>Not over three stories with complete automatic sprinkler system.</td> </tr> <tr> <td>4</td> <td>III (211)</td> <td></td> </tr> <tr> <td>5</td> <td>V (111)</td> <td>Not over two stories with complete automatic sprinkler system.</td> </tr> <tr> <td>6</td> <td>IV (2HH)</td> <td></td> </tr> <tr> <td>7</td> <td>II (000)</td> <td></td> </tr> <tr> <td>8</td> <td>III (200)</td> <td></td> </tr> <tr> <td>9</td> <td>V (000)</td> <td>Not over one story with complete automatic sprinkler system.</td> </tr> </table>	1	I (443), I (332), II (222)	Any Height	2	II (111)	One story only (non-sprinklered).	3	II (111)	Not over three stories with complete automatic sprinkler system.	4	III (211)		5	V (111)	Not over two stories with complete automatic sprinkler system.	6	IV (2HH)		7	II (000)		8	III (200)		9	V (000)	Not over one story with complete automatic sprinkler system.			
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Name of Facility				2000 CODE			
ID PREFIX	2000 NEW	MET	NOT MET	N/A	REMARKS		
K12	Building construction type and height meets one of the following: 18.1.6.2, 18, 18.1.6.3, 18.2.5.1						
K13	<div>1</div> <div>I (443), I (332), II (222)</div> <div>Any height with complete automatic sprinkler system</div>						
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K103	Interior walls and partitions in buildings of Type I or Type II construction shall be noncombustible or limited-combustible materials. 18.1.6.3, 19.1.6.3  (Indicate N/A for existing buildings using listed fire retardant treated wood studs within non-load bearing one-hour rated partitions.)						

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